

Appl. No. 10/717,951  
Docket No. XOGN002-01US  
Filed: November 19, 2003  
Reply to Restriction Requirement of March 29, 2005

### **Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

#### **Listing of Claims:**

Claim 1. (Original) A method for treating a waste stream in a waste treatment system, the method comprising the steps of:

operating an oxyhydrogen gas generator within the waste treatment system to produce oxyhydrogen-rich gas;

contacting at least a portion of the waste stream with at least a portion of the oxyhydrogen-rich gas to conduct a unit process for treating the waste stream; and

conveying at least a portion of the oxyhydrogen-rich gas for a second use in the waste treatment system.

Claim 2. (Original) The method of claim 1 wherein the waste stream includes a water component and the operation of the oxyhydrogen gas generator produces oxyhydrogen-rich gas from the water component of the waste stream.

Claim 3. (Original) The method of claim 1 wherein the waste stream includes a water component, and further comprising:

segregating at least a portion of the water component from the waste stream; and

operating the oxyhydrogen gas generator to produce oxyhydrogen-rich gas from the segregated portion of the water component.

Claim 4. (Original) The method of claim 1 wherein the oxyhydrogen gas generator is operated to produce oxyhydrogen-rich gas from a water source external to the waste stream.

Claims 5 – 23. (Cancelled)

Claim 24. (Original) The method of claim 1 wherein the second use includes using the oxyhydrogen-rich gas as a fuel for combustion.

Claim 25. (Original) The method of claim 24 wherein the combustion produces heat and the produced heat is recovered for use within the waste treatment system.

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Claim 26. (Currently Amended) The method of claim 24, wherein the combustion produces an exhaust including water vapor, and further comprising the step of:

condensing the water vapor from the combustion exhaust for use within the ~~wastewater treatment facility waste treatment system~~.

Claim 27. (Original) The method of claim 1 wherein the second use includes power generation.

Claim 28. (Original) The method of claim 1 further comprising the step of separating the oxyhydrogen-rich gas into an oxygen-rich component and a hydrogen-rich component.

Claim 29. (Original) The method of claim 28 wherein the second use includes converting at least a portion of the oxygen-rich component to ozone for use in disinfecting effluent in the waste treatment system.

Claim 30. (Currently Amended) The method of claim 28 wherein:

the waste treatment ~~facility~~ system includes an oxygen demand; and

the second use includes using the oxygen-rich component to fulfill at least a portion of the oxygen demand.

Claim 31. (Original) The method of claim 28 wherein the second use includes using the hydrogen-rich component as a fuel source.

Claim 32. (Cancelled)

Claim 33. (Original) The method of claim 1, wherein the step of operating the oxyhydrogen gas generator includes the steps of:

submersing at least a pair of closely-spaced electrodes in the waste stream; and

supplying a pulsed electrical signal to at least one of the electrodes.

Claim 34. (Withdrawn) A system for treating a waste stream having a water component, comprising:

a gas generator configured and arranged to produce an oxyhydrogen-rich gas from the water component of the waste stream;

a first unit process for treating the waste stream in which at least a portion of the waste stream is contacted with at least a portion of the oxyhydrogen-rich gas; and

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a second unit process separate from the first unit process and in which at least a portion of the oxyhydrogen-rich gas is utilized for treatment of the waste stream.

Claim 35. (Withdrawn) A system according to claim 34, wherein the first unit process includes stabilization and the second unit process includes disinfection.

Claims 36-44. (Cancelled)

Claim 45. (New) The method of claim 1 further comprising the step of conveying at least a portion of the oxyhydrogen-rich gas to an incinerator, wherein the incinerator uses the oxyhydrogen-rich gas as a fuel source to incinerate the waste stream.

Claim 46. (New) The method of claim 45 wherein the oxyhydrogen-rich gas fuel source provides sufficient energy to incinerate the waste stream without a separate energy source.

Claim 47. (New) The method of claim 45 wherein the oxyhydrogen-rich gas fuel source provides sufficient energy to incinerate the waste stream without substantially reducing water content in the waste stream.

Claim 48. (New) The method of claim 33 wherein the oxyhydrogen-rich gas forms bubbles in a water component of the waste stream, the bubbles adhering to solids in the waste stream and rising to a surface where the solids may be removed.